Appendix G

Stony Creek Project

Soil and Water Information

Water

Table F1. Descriptive Statistics of Water Quality Data for Blue Ridge Ecoregion

Parameter	Unit	Number of Observations	Minimum	Maximum	Median	Mean
Temp	° C	153	1.01	24.72	11.60	11.67
Dissolved Oxygen	Mg/l	152	7.74	16.60	10.06	10.31
Suspended Residue	Mg/l	164	5.00	49.00	5.00	5.51
Dissolved Residue	Mg/l	164	5.00	126.00	22.00	26.96
Turbidity	NTU	163	0.10	15.00	0.90	1.50

Soil

The following soil information is from the National Cooperative Soil Survey, 2004 Soil Survey of Carter County, Tennessee.

Braxton Series

The Braxton soil series consists of very deep, well drained soils found on upland ridge crests, shoulders, and side slopes. Slopes range from sloping to extremely very steep (5 to 50%). The surface layer is silty loam with a minor component of gravel overlaying silty clay to clay. Bedrock typically occurs at or below 60 inches of the surface. The parent material is residuum from limestone, covered in places by a mantle of alluvium or valley fill.

Brookshire Series

The Brookshire soil series consists of very deep, well drained soils found on side slopes of north- and east-facing mountain coves. Slopes are generally steep (20 to 35%). The surface layer is a dark silty loam with a component of gravel overlaying increasingly gravelly silt loam. Bedrock typically occurs at or below 40 inches of the surface. The parent material is colluvium from metasedimentary rocks.

Calvin Series

The Calvin series consists of moderately deep, well drained soils found on ridgetops, shoulders and side slopes. Slopes range from moderately to very steep (12 to 50%). Surface layer is typically channery silt loam. The parent material is residuum non-calcareous shale or siltstone.

Cataska Series

The Cataska soil series consists of shallow and excessively drained soils found on mountain crests, shoulders, and side slopes. Slopes range from steep to extremely steep (20 to 80%). Surface layer is typically slightly decomposed forest litter overlaying channery silt loam. Weathered bedrock may occur within 10 to 20 inches of the surface. The parent material is residuum from siltstone or metasandstone.

Ditney Series
The Ditney series consists of moderately deep, well drained, soils found on mountain ridge crests, shoulders, and side slopes. Slopes range from steep to extremely steep (20 to 95%). Surface layer is typically partially decomposed forest litter overlaying sandy loam. Where the Ditney-Unicoi complex (Dj) occurs on mountainsides, the subsurface layer can include very cobbly sandy loam. The parent material is residuum from metasedimentary rocks.

Jeffrey Series
The Jeffrey series consists of moderately deep, well drained soils found on the tops and sides of mountain ridges. Slopes range from moderately to very steep (15 to 50%). Surface layer is typically partially decomposed forest litter overlaying cobbly loam. The parent material is residuum from metasedimentary rocks.

Keener Series
The Keener series consists of very deep, well drained soils found on footslopes, benches, colluvial fans, and mountain coves. Slopes range from slanting to very steep (5 to 50%). Surface layer is typically loam. The parent material is colluvium from metasedimentary rocks.

Lonon Series
The Lonon series consists of very deep, well drained soils found on benches, footslopes, and toeslopes. Slopes range from moderately steep to steep (12 to 35%). Surface layer is typically loam. The parent material is colluvium weathered from metasedimentary rocks.

Maymead Series
The Maymead series consists of very deep, well drained soils found on mountain coves, footslopes, and benches. Slopes range from steep to very steep (20 to 50%). Surface layer is typically partially decomposed forest litter overlaying loam. The parent material is colluvium from metasedimentary rocks.

Northcove Series
The Northcove series consists of very deep, well drained soils found on mountain coves, footslopes, and benches. Slopes range from very steep to extremely steep (35 to 80%). Surface layer is typically partially decomposed forest litter overlaying very stony sandy loam. The parent material is colluvium from metasedimentary rocks.

Potomac Series
The Potomac series consists of very deep, somewhat excessively drained soils found on flood plains. Slopes are nearly level (0-3%). The surface layer is a very dark gravelly loam overlaying very cobbly to extremely cobbly sand. The parent material is coarse textured alluvium.

Unicoi Series
The Unicoi series consists of shallow, somewhat excessively drained soils found on side slopes of mountain ridges. Limestone rock outcrops may be present as individual rocks, ledges, or bluffs where the Unicoi-Rock outcrop complex (Ug) occurs. Slopes are extremely steep (50 to 95%). Surface layer is typically partially decomposed and highly decomposed forest litter overlaying very cobbly sandy loam. The parent material is residuum from metasedimentary rocks.

Table F2: Soils on National Forest System lands in the Stony Creek Watershed [1]

Map Unit Symbol [2]	Map Unit Name	Acres	Erosion Hazard	Rutting Hazards	Haul Road & Log Landing Limitations	Harvest Equipment Operability
BrC	Braxton	14	Slight	Severe	Slight	Moderately suited
BrE2	Braxton	55	Moderate	Severe	Moderate	Moderately suited
BsE	Brookshire	5	Moderate	Severe	Moderate	Poorly suited
CaE	Calvin	35	Slight	Severe	Moderate	Moderately suited
CcF	Cataska	3113	Moderate	Severe	Moderate	Poorly suited
CcG	Cataska	720	Moderate	Severe	Severe	Poorly suited
DtE	Ditney	2761	Slight	Moderate	Severe	Moderately suited
DtF	Ditney	7631	Moderate	Severe	Severe	Poorly suited
DtG	Ditney	216	Moderate	Moderate	Severe	Poorly suited
JeE	Jeffrey	35	Moderate	Severe	Severe	Poorly suited
JeF	Jeffrey	4	Moderate	Severe	Severe	Poorly suited
KeC	Keener	16	Moderate	Severe	Moderate	Moderately suited
KeD	Keener	32	Moderate	Severe	Moderate	Moderately suited
KeE	Keener	1434	Severe	Severe	Moderate	Moderately suited
KeF	Keener	3558	Severe	Moderate	Severe	Poorly suited
LoC	Lonon	7	Slight	Severe	Slight	Moderately suited
LoD	Lonon	16	Moderate	Moderate	Moderate	Well suited
LoE	Lonon	31	Moderate	Severe	Moderate	Moderately suited
MaE	Maymead	73	Moderate	Severe	Moderate	Moderately suited
MaF	Maymead	2500	Severe	Severe	Severe	Poorly suited
NcF	Northcove	880	Severe	Slight	Severe	Poorly suited
NcG	Northcove	775	Severe	Slight	Severe	Poorly suited
Po	Potomac	12	Slight	Slight	Slight	Well suited
UcG	Unicoi-Rock outcrop complex	5123	Moderate	Slight	Severe	Poorly suited
Total Acres		**29,046**				

[1] The ratings are based on average conditions for the soil type and are not intended to describe localized variances that can occur. Soil data and descriptions were gathered from the National Cooperative Soil Survey for Carter County, Tennessee and the Web Soil Survey 2.0 National Cooperative Soil Survey. Acres provided are for the Stony Creek Watershed, excluding private lands, and were calculated using ArcMap version 10.0.

[2] C = 5-12% slope; D = 12-20% slope; E = 20-35% slope; F = 35-50% slope; G = 50-80% slope

Table F2 Descriptions:

Erosion Hazards

The ratings in this interpretation indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities expose the soil surface. The ratings are based on slope and soil erosion factor K.

The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation

of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Rutting Hazards

Ratings in this interpretation indicate the hazard of surface rut formation through the operation of forestland equipment. Soil displacement and puddling (soil deformation/compaction) may occur along with rutting.

Ratings are based on depth to a water table, rock fragments on or below the surface, the Unified classification of the soil, depth to a restrictive layer, and slope. The hazard is described as slight, moderate, or severe. A rating of "slight" indicates that the soil is subject to little or no rutting. "Moderate" indicates that rutting is likely. "Severe" indicates that ruts form readily.

Haul Road and Log Landing Limitations

For limitations affecting the construction of haul roads and log landings, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification of the soil, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding.

Rating class terms indicate the degree to which the soils are suited to this aspect of forestland management. The limitations are described as slight, moderate, or severe. A rating of "slight" indicates that no significant limitations affect construction activities. "Moderate" indicates that one or more limitations can cause some difficulty in construction. "Severe" indicates that one or more limitations can make construction very difficult or very costly.

Harvest Equipment Operability

Ratings indicate the suitability for use of forestland harvesting equipment. Ratings are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification of the soil, depth to a water table, and ponding. Standard rubber-tire skidders and bulldozers are assumed to be used for ground-based harvesting and transport.

Ratings are both verbal and numerical. Rating class terms indicate the degree to which the soils are suited to this aspect of forestland management. “Well suited” indicates that the soil has features that are favorable for the specified management aspects and has no limitations. Good performance can be expected, and little or no maintenance is needed. “Moderately suited” indicates that the soil has features that are moderately favorable for the specified management aspects. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. “Poorly suited” indicates that the soil has one or more soil properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration.

Early Successional Forest Habitat Soils: Stony Creek Project

Table F3 is a summary of the soil types within all stands proposed for early successional forest habitat (ESFH). Table F4 provides data on the soil types for ESFH by compartment and stand.

Table F3: Soils for All ESFH Treatment Areas (Alternatives B and C combined)

Map Unit Symbol	Soil Name	Acres	Percent Slope	Erosion Hazard	Rutting Hazards	Haul Road & Log Landing Limitations	Harvest Equipment Operability
CcF	Cataska	47.0	35-50	Moderate	Severe	Moderate	Poorly suited
DtE	Ditney	38.7	20-35	Slight	Moderate	Severe	Moderately suited
DtF	Ditney	199.7	35-50	Moderate	Severe	Severe	Poorly suited
JeE	Jeffrey	5.6	20-35	Moderate	Severe	Severe	Poorly suited
KeD	Keener	0.4	5-12	Moderate	Severe	Moderate	Moderately suited
KeE	Keener	52.3	20-35	Severe	Severe	Moderate	Moderately suited
KeF	Keener	64.3	35-50	Severe	Moderate	Severe	Poorly suited
MaF	Maymead	6.0	35-50	Severe	Severe	Severe	Poorly suited
NcF	Northcove	0.3	35-50	Severe	Slight	Severe	Poorly suited
NcG	Northcove	5.9	50-80	Severe	Slight	Severe	Poorly suited
UcG	Unicoi-Rock	27.9	50-80	Moderate	Slight	Severe	Poorly suited

Table F4: Soils for All ESFH Treatment Areas by Compartment and Stand

Compartment	Stand	Map Unit Symbol	Acres	Alt
66	40	DtE	5.3	B
		DtF	28.5	
		JeE	5.6	
		Total	**39.4**	
67	2	CcF	12.4	B, C
		KeE	10.3	
		KeF	7.4	
		Total	**30.1**	
67	7	CcF	1.7	B, C
		KeE	2.6	
		KeF	5.5	
		Total	**9.8**	
67	18	DtE	0.5	B, C
		DtF	24.9	
		KeE	5.3	
		KeF	8.8	
		Total	**39.5**	
68	5	DtF	32.5	B
		KeF	7.5	
		Total	**40.0**	

Compartment	Stand	Map Unit Symbol	Acres	Alt
68	12	DtF	18.6	C
		KeF	4.0	
		Total	**22.6**	
68	30	DtE	32.9	B
		DtF	5.9	
		Total	**38.8**	
69	11	CcF	26.9	C
		KeE	10.5	
		KeF	3.2	
		Total	**40.6**	
69	35	DtF	4.2	C
		KeF	2.8	
		Total	**7.0**	
71	1	KeD	0.4	B, C
		KeE	23.6	
		KeF	12.7	
		Total	**36.7**	
71	8	DtF	27.5	B, C
		MaF	1.0	
		UcG	7.1	
		Total	**35.6**	
71	29	DtF	19.6	B, C
		KeF	12.4	
		Total	**32.0**	
72	15	DtF	15.6	B, C
		NcF	0.3	
		NcG	5.7	
		UcG	18.5	
		Total	**40.1**	
73	17	CcF	6.0	B, C
		DtF	26.6	
		MaF	5.0	
		UcG	2.3	
		Total	**39.9**	